National Park Service - Southwest Alaska Network
Inventory & Monitoring Program

Microsoft Access Database Application Specifications For Southwest Alaska Network Inventory and Monitoring Program

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Acronyms:

I&M	Inventory & Monitoring (Program)
NPS	National Park Service
SWAN	Southwest Alaska Network
WASO	Washington Support Office

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1. Overview

As the Southwest Alaska Network (SWAN) Inventory & Monitoring Program (I&M) matures, there will be an increased need for database applications to monitor the vital signs of national parks. The majority of these applications will be specific enough in scope to limit their use to the vital sign for which they were developed. While there will be differences in each application, it will ease training requirements and lower development time if a common look and feel to each individual application is maintained.

1.1. Purpose

Provide technical specifications for application development using MS Access.

1.2. Scope and Applicability

These specifications are not required, but are recommended for all database applications created for the SWAN. Cases where there are joint efforts from outside of the Network may be the exception.

1.3. Responsibilities

The application developer is responsible for using these specifications to the best of his/her ability. The SWAN Data Manager or Data Manager Assistant will provide final editing.

1.4. Form Specifications

The applications developed in MS Access database should be consistent in these features:

- General Appearance
- Color Palette and Font
- Standard Header and Title Bar for Forms
- Command Buttons or Menu Buttons
- Switchboard or Main Menu
- Tools for updating linked tables or backups

1.4.1. General Appearance

Figure 1 shows a typical form using the common look and feel. It has a standardized header, form title, menu buttons, color palette, font and font size.

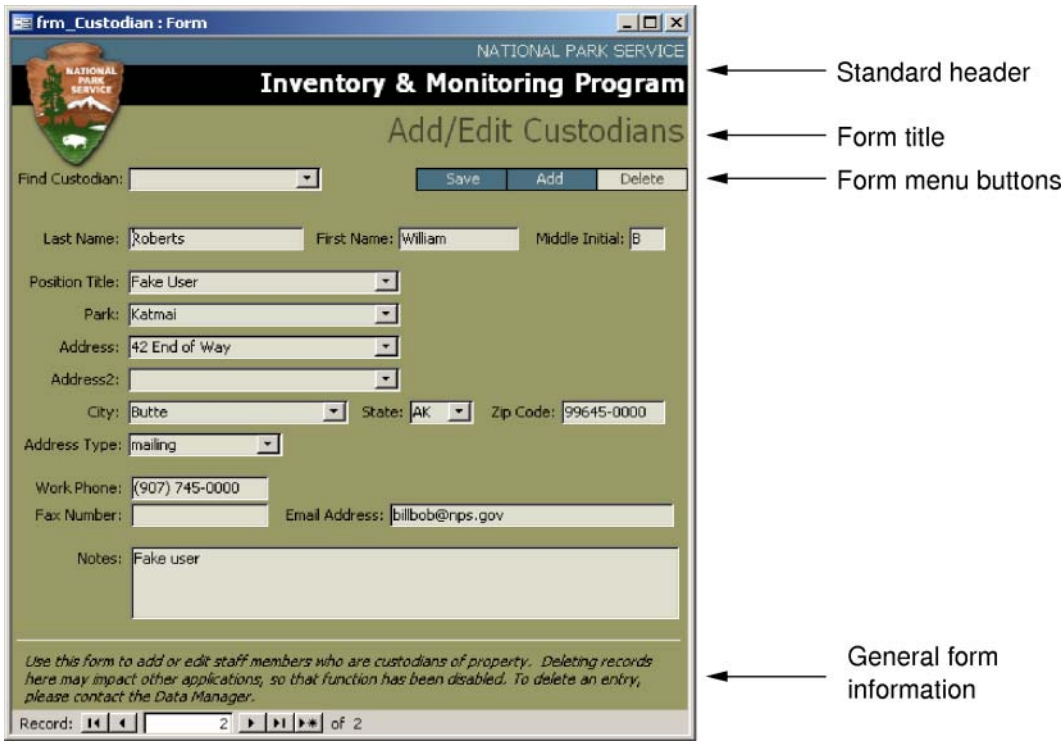


Figure 1. Sample database form

1.4.2. Color Palette and Font

Provided are the standardized font and color palette for developing a desktop database. The font size and color may change for databases developed for field work where color contrast may be necessary for viewing.

Desktop Databases

Color Palette:
A standardized color palette was chosen which allows controls from one form to be copied to another with no color scheme modifications. A defined palette allows for automated tools to modify forms and change the background and foreground colors of each individual control, based on its control type.

Below is a table containing each of the colors in the palette, depicted in decimal for Access, RGB triplets for Word and Photoshop, and Hex values for web pages. Also provided is a list of examples of what each of these colors should be used for on database forms.

Table 1. Color Palette

Decimal	RGB Triplets	Hex	Database Form Applications
13688799	223/223/208	#dfdfd0	Text field, pull downs, and combo box backgrounds.
8563370	170/170/130	#aaaa82	Sub-form background color, disabled command buttons.
6723993	153/153/102	#999966	Main background color, disabled text fields, text field highlights.
3163975	71/71/48	#474730	Form title, help or information text.
8548427	75/112/130	#4b7082	Title bar background, menu buttons, continuous form headers.
128	128/0/0	#810000	Alerts, warnings, and other important labels.

Font:

Just as limiting the range of allowed colors in standardized applications, limiting the amount of font changes between applications is a vital aspect of a common look and feel. Here is a list of general guidelines for use on all forms:

- The standard font for SWAN database applications is Tahoma.
- The common labels should be 10 point, black, and normal typeface.
- Bold face only used on column headers or warnings/alerts.
- Help or information text in italics to delineate it from standard labels.

1.4.3. Standard Header and Title Bar

The standard header and title bar should be applied to all switchboards and first page forms. Subsequent forms should omit the NPS logo, as this may make the database file size unnecessarily large.

The standard header consists of:

- One blue bar with the Agency name
- One black bar with the Program name
- NPS logo (may include logos from other partners)

MS Access does not support transparent images. To work around this limitation, the NPS logo designed for MS Access applications contain a blue and black banner in the background (see Figure 2). When the image is layered on top of the two newly created bars, the logo will appear to have a transparent background.

Figure 2. NPS logo designed for MS Access applications

To create the header, use a layering technique in the following order:

1. Black box
2. Blue box
3. Logo
4. Text for agency, program, and form title

Specifications:

The fonts used in the title bar differ in size and color then the other fonts in the form and are specified here.

Black Box:

- Width: Width of the form or switchboard
- Height: 0.5" high
- Align: Top of page

Blue Box:

- Width: Width of the form or switchboard
- Height: 0.2" high
- Align: Top of page

Logo:

- Width: .77" wide
- Height: 1" high
- Align: Top and left of page

Blue Box Text:

- Content: Name of the agency. Should read "National Park Service"
- Font: Tahoma font, normal weight
- Size: 10 point
- Color: RGB 223/223/208 (decimal = 13688799)
- Align: Right justified

Black Box Text:

- Content: Name of the program. Should read "Inventory and Monitoring Program"
- Font: Tahoma font, bold face
- Size: 14 point
- Color: white(decimal = 16777215)
- Align: Right justified

Form Title Text (below header):

- Content: Specify the name of the application or form
- Font: Tahoma font, normal weight

- Size: 18 point
- Color: RGB 71/71/148 (decimal = 3163975)
- Align: Right justified

1.4.4. Command Buttons or Menu Buttons

Command buttons, or menu buttons, are blue, flat rectangles with a hairline black border. This style of buttons was selected due to the ease of providing visual feedback and overall aesthetics.

Creating a command button is done by creating a blue (decimal = 8548427) filled rectangle along with a centered text label. Next a command button is created the exact size of the rectangle and layered on top of the rectangle, and the transparency property flag is enabled. This allows all the standard command button events to still be contained, while displaying the desired flat blue button.

Providing visual feedback with the command buttons should be consistent across all applications.

- Disabled command buttons should be a shade lighter (decimal = 8563370) then the form background.
- If a command button from a menu is currently active, then that button should be highlighted (decimal = 13688799) to indicate to the user it has been selected. For example, if the user is currently editing habitats on the habitat form, the 'Habitat' command button should reflect active status.
- If the user moves the mouse over a valid command button, the text should highlight to provide feedback to the user.

1.4.5. Switchboard or Main Menu

All applications should open with a Main Menu or Switchboard to help navigate the database. This main menu should use the file name of "frm_main_menu." The Main Menu should follow the specifications in this document and should include buttons for the following functions where applicable:

- *Data Entry* – Opens a new blank record. As a significant part of the application will be adding new records, this function should enable the user to be able to start adding new data with a single button.
- *Data Viewing or Summary* – Opens up the database in a filterable view only mode. While in this view mode, there should be a button to either edit the currently viewed record, or to enable an edit mode, but by default this view should not be editable.
- *Reports* –Lists on a submenu all reports. It may also include exports, charts, or graphs.
- *Verify Data* –Lists procedures to help verify the quality of the data in the database. These are highly dependent on the complexity of the database, and not all applications may require their use.

- *Utilities* –lists general utilities for use with the database. These utilities should include at a minimum a method for the user to backup the database. Other utilities that should be provided if applicable include database linking utilities and form and report generation utilities.
- *Exit* – Exits the application. Certain applications may have a requirement to execute certain functions on exit, such as making a backup of the database, or logging each use of the application. The exit button facilitates the implementation of these functions.

Figure 3. Example Main Menu

The example in figure 3 displays a typical switchboard using the specifications provided.

1.5. Report Format

Reports generated from an Access database should contain the following features:

- A descriptive title
- Indication of agency(ies) and program(s), such as Southwest Alaska Network, Inventory and Monitoring Program.
- Indication of the project
- Citation of the source of data, if the report will be a stand-alone report
- Date the report was printed (often automatic in creating reports)

- Page numbers
- Special sensitivity notations, such as:
  - Draft – Do Not Cite or Quote
  - Sensitive Information – Do not distribute
- Similar presentation as other Inventory and Monitoring Program reporting formats, depending on what the report will be used for.
- Protocol databases should include version in the footer.

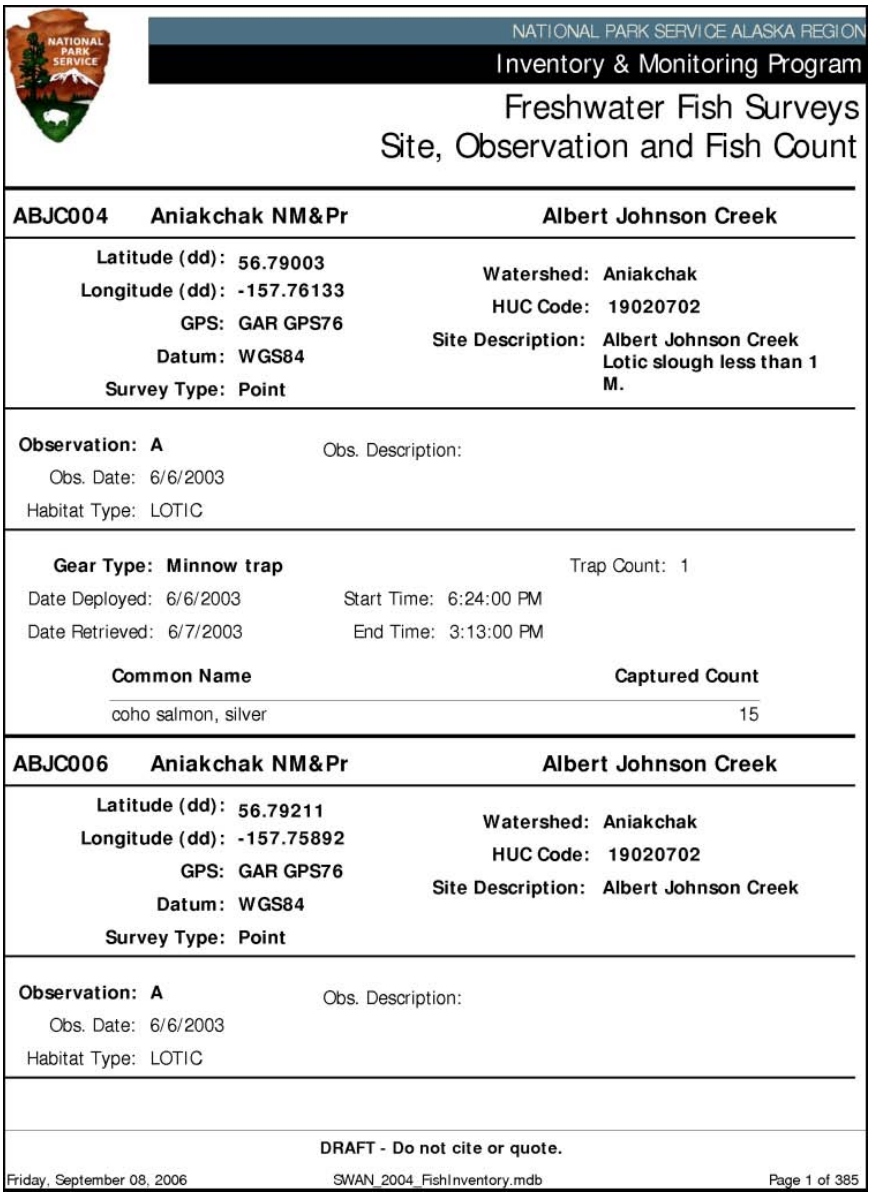
1.5.1. General Appearance

The general layout of the reports in an application is difficult to standardize, as often there are distinct requirements to meet, such as matching field data sheets or replicating a report from a different application. Reports that do not have strict requirements associated with them should follow these guidelines where applicable. Figure 4 and 5 provide examples.

1.5.2. Color Palette and Font

The use of colors in a report should be limited on any report that will be printed. If color is to be used, it should be selected from the color palette listed in table #1. It is important that when using color in a report, to print the report in black and white only, and verify that it is still functional.

The base font in all reports should be Tahoma, between point size 8 and10. This is the same as the forms, and helps provide consistency throughout the application. There may be situations involving a large number of fields where it is not practical to use a 10 point font. The base font can be adjusted for the needs of the report, but should be done with some reservation.



NATIONAL PARK SERVICE ALASKA REGION
Inventory & Monitoring Program

Freshwater Fish Surveys
Site, Observation and Fish Count

ABJC004 Aniakchak NM&Pr Albert Johnson Creek

Latitude (dd): 56.79003
Longitude (dd): -157.76133
GPS: GAR GPS76
Datum: WGS84
Survey Type: Point

Watershed: Aniakchak
HUC Code: 19020702
Site Description: Albert Johnson Creek Lotic slough less than 1 M.

Observation: A
Obs. Date: 6/6/2003
Habitat Type: LOTIC
Obs. Description:

Gear Type: Minnow trap
Trap Count: 1
Date Deployed: 6/6/2003
Start Time: 6:24:00 PM
Date Retrieved: 6/7/2003
End Time: 3:13:00 PM

Common Name	Captured Count
coho salmon, silver	15

ABJC006 Aniakchak NM&Pr Albert Johnson Creek

Latitude (dd): 56.79211
Longitude (dd): -157.75892
GPS: GAR GPS76
Datum: WGS84
Survey Type: Point

Watershed: Aniakchak
HUC Code: 19020702
Site Description: Albert Johnson Creek

Observation: A
Obs. Date: 6/6/2003
Habitat Type: LOTIC
Obs. Description:

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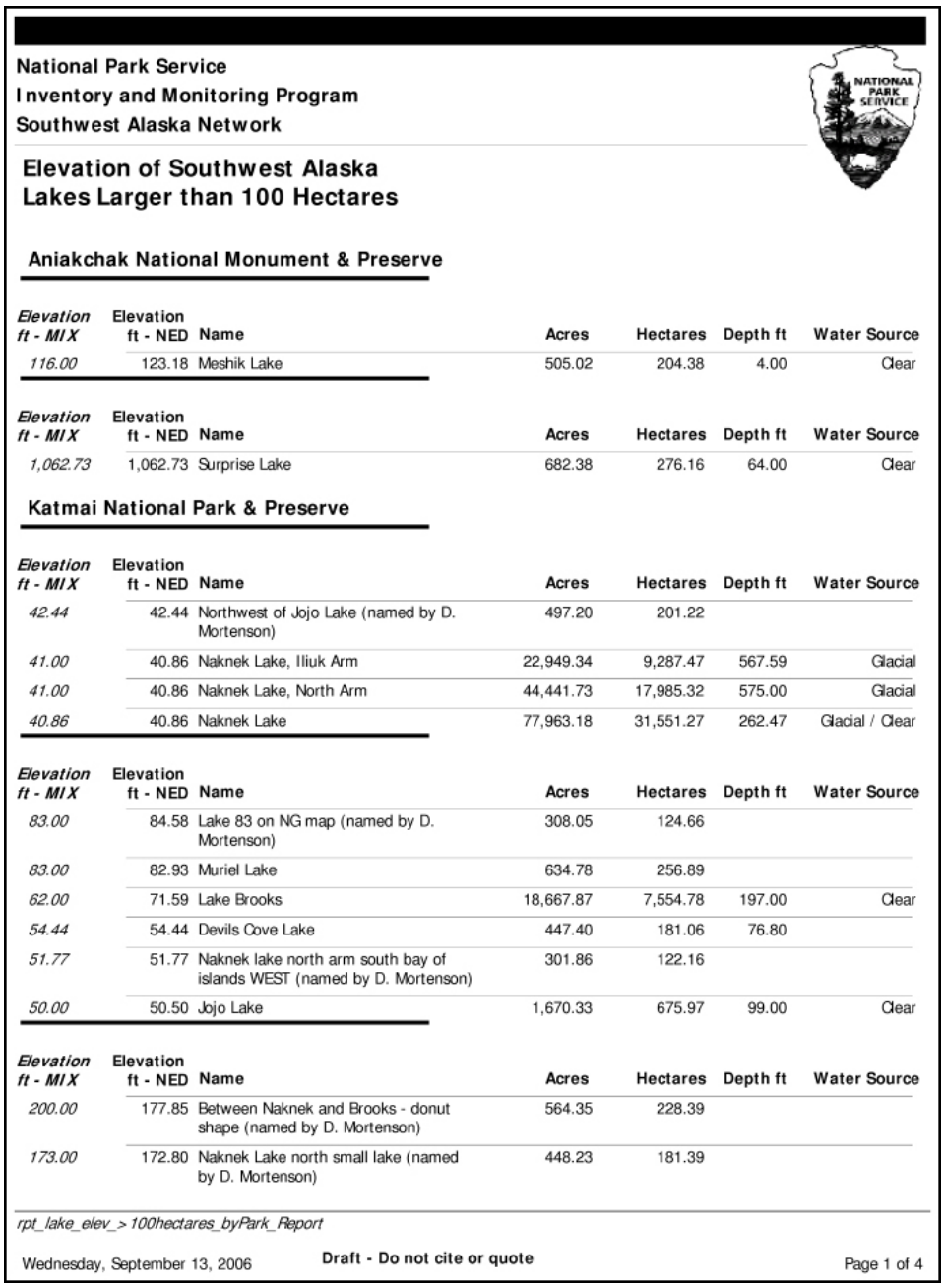
Figure 4: Sample report using a color header



National Park Service
Inventory and Monitoring Program
Southwest Alaska Network

Elevation of Southwest Alaska Lakes Larger than 100 Hectares

Aniakchak National Monument & Preserve

Elevation ft - MIX	Elevation ft - NED	Name	Acres	Hectares	Depth ft	Water Source
116.00	123.18	Meshik Lake	505.02	204.38	4.00	Clear
1,062.73	1,062.73	Surprise Lake	682.38	276.16	64.00	Clear

Katmai National Park & Preserve

Elevation ft - MIX	Elevation ft - NED	Name	Acres	Hectares	Depth ft	Water Source
42.44	42.44	Northwest of Jojo Lake (named by D. Mortenson)	497.20	201.22		
41.00	40.86	Naknek Lake, Iliuk Arm	22,949.34	9,287.47	567.59	Glacial
41.00	40.86	Naknek Lake, North Arm	44,441.73	17,985.32	575.00	Glacial
40.86	40.86	Naknek Lake	77,963.18	31,551.27	262.47	Glacial / Clear
83.00	84.58	Lake 83 on NG map (named by D. Mortenson)	308.05	124.66		
83.00	82.93	Muriel Lake	634.78	256.89		
62.00	71.59	Lake Brooks	18,667.87	7,554.78	197.00	Clear
54.44	54.44	Devils Cove Lake	447.40	181.06	76.80	
51.77	51.77	Naknek lake north arm south bay of islands WEST (named by D. Mortenson)	301.86	122.16		
50.00	50.50	Jojo Lake	1,670.33	675.97	99.00	Clear
200.00	177.85	Between Naknek and Brooks - donut shape (named by D. Mortenson)	564.35	228.39		
173.00	172.80	Naknek Lake north small lake (named by D. Mortenson)	448.23	181.39		

rpt_lake_elev_>100hectares_byPark_Report

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Figure 5: Sample report using a black and white header

1.5.3. Standard Header and Title Bar, Option 1

As with the forms, the fonts used in the header differ from the main content font. Option 1 is illustrated in figure 4.

- Agency line in blue bar – Should read “National Park Service” in 10 point Tahoma font, normal weight, all capital letters, in white.
- Line office in black bar – Should read “Inventory and Monitoring Program” in 14 point Tahoma font, bold face, in white.

- Report title below header bars – Should specify the name of the application or form, in 18 point Tahoma font, normal weight, in black.

The standard header and title bar should only be displayed once in a report, and not on every page of the report. Also the use of the color bars and logo can be omitted depending on the use of the report.

1.5.4. Standard Header and Title Bar, Option 2

Figure 5 provides an example using black and white only and illustrates another format that can be used. The specifications for this format are:

- Top black bar – Width of the page; .2" height
- Text for agency, program, and network – Tahoma font; 10 point
- Text for title – Tahoma font; 12 point

1.6. Utilities Specifications

Standardized utilities will help provide consistent tools from one database to another. These are currently under development but will include:

- Standard back-end database linking tool
- Back-end database archival utility
- Generic error handling and reporting
- Common search functions
- Common sorting functions

A form, following the specifications for main menus and switchboards, will contain all the user level utilities, such as backup, linking tables, revision history, etc. This will enable the user to be familiar with the layout of the utilities, and will ease the reuse of the code by developers.

Visual Basic code written for these will be stored in a central location for use throughout the region. Likewise these utilities and others will be shared on the Washington Support Office (WASO) Data Management website.

1.7. Planned Revisions

Standards on reporting of natural resources are currently being developed. As these become more mainstream, this SOP should be revised to better reflect the needs for these reports.